



TECHNICAL NOTE



Forestry FL-19

July 2000

Planning Guidelines for Forest Site Preparation, Code 490



Some type of site preparation is usually needed on any area before either planting, direct seeding or natural seeding is accomplished. As with any silvicultural activity, follow recommendations in the State of Florida's Silviculture Best Management Practices (BMPs) and avoid violations of Section 404 of the Clean Water Act.

CONDITIONS/SITE PREP

Following is a listing of general conditions and the appropriate site preparation:

A. Land recently in cultivation

Site preparation not essential.

B. Land formerly cultivated and presently covered with low-growing shrubs, grasses, and forbs

1. Prescribed burning
2. Disk
3. Scalping

C. Land presently in un-merchantable trees with understory of shrubs, vines and other vegetation

One or a combination of methods may be used.

1. *Prescribed burn* to remove litter to mineral soil and kill small trees up to 2 inches DBH (diameter at breast height). Firebreaks should be established prior to burning.

2. *Chopping, disk, or harrowing* of smaller trees up to 5 inches DBH. Deaden all trees above 5 inches DBH with chemicals (see Forest Stand Improvement, Code 666).

3. *Shearing or uprooting and windrowing* trees and debris of all sizes with dozer or K/G blade mounted on a heavy duty crawler tractor. Windrows may require burning.

4. *Bedding* which improves survival and growth of seedlings on high water table sites.

5. *Chemical* site preparation

- a. Individual stem treatment
- b. Foliar spraying
- c. Soil treatment

See NRCS conservation practice standard Forest Stand Improvement, Code 666.

D. Land with adequate seed trees for natural seeding

1. Any of the methods listed in C above, except when using prescribed burning, the fire can not be as hot as in areas that are to be cleared. (See NRCS conservation practice standard Prescribed Burning, Code 338).

2. *Logging* - Enough mineral soil may be exposed after a logging operation to get regeneration. Undesirable trees, shrubs, and vines may be deadened chemically.

METHODS OF SITE PREPARATION

The type and intensity of site preparation vary according to species desired, ground cover, and soils. Methods of site preparation should be used which will minimize soil erosion.

There are four primary methods of forest site preparation:

1. Prescribed Burning
2. Mechanical
3. Chemical
4. Soil disturbance by logging

Below is a discussion of these methods and the various types within a method:

Prescribed Burning. Prescribed burning is the oldest and least expensive method of site preparation. It is often used in combination with other site preparation methods.

Prescribed burning is especially useful in regenerating pine stands naturally. For natural regeneration, a stand will need to be prescribed burned several times over a period of years to control undesirable plant competition. When a good seed crop is projected, the stand should be prescribed burned prior to seed fall to prepare the seedbed.

All burns must be conducted under the supervision of a qualified and trained individual, preferably someone who is certified in prescribed burning. All applicable laws should be followed. Authorization must be obtained from the Florida Division of Forestry.

Mechanical. Do not conduct intensive mechanical site preparation in wetlands (according to the federal definition of wetlands, not that used in the Florida's BMP manual).

- A. Harrowing, disking, or plowing: This type of site preparation turns the soil, thereby removing competition and exposing roots. This preparation is used on cleared areas, sodded areas, and on areas lightly covered with brush. Harrowing, disking, or plowing should be on the contour and should be used on only slopes less than 5 percent.
- B. Subsoiling: Subsoiling is used to break compacted surface layers that restrict root growth. Subsoiling should be done to a depth of 18 to 24 inches. Subsoiling should conform to the planned row spacing and should be applied 2 to 3 months before tree planting when soils are dry.

- C. Chopping: Chopping is usually used to prepare upland sites where vegetation is brush and small diameter trees (≤ 5 inches). Chopping is usually done with a rolling drum chopper. The drum chopper crushes the woody vegetation and cuts it into small pieces. This type of site preparation minimizes soil loss and may be used on soils with moderate to severe erosion hazard.

- D. Shearing: Shearing is used to prepare sites where the vegetation is generally large (8 inches or more dbh). Shearing is done with shearing blades that are either angled or V-shaped. Blades with serrated edges have the best cutting action.

Trees should be pushed into contour windrows if the area is to be planted by machine. Windrowing may not be necessary, especially if the area is to be direct seeded or planted by hand. Windrowing increases the cost of site preparation.

- E. Blading: Blading is the removal of trees with a straight-blade bulldozer. This is a poor method of site preparation. Blading removes topsoil, thereby damaging the site and increasing erosion. It should be used only when other methods are not available. Debris is pushed down and windrowed on the contour if machine planting is to be done. If minimum site preparation is desired, vegetation may be pushed down and the site may be either direct seeded or planted by hand.
- F. Mowing: A tractor drawn rotary mower of the "Bush Hog" type can be used to remove herbaceous vegetation and small, woody vegetation. This method is usually limited to abandoned pasture and cropland.
- G. Bedding: Large disks can be used to form elevated beds. These beds allow tree planting in high water table areas and also reduce competition from other vegetation. Bedding is used often in combination with other methods of site preparation. Bedding should not be used on slopes greater than 2 percent. Bedding should not be used in pitcher plant bogs and in other wetland types where the objective is conversion to pine plantations.

Chemical. Herbicides can be used to kill vegetation before regeneration. Herbicides may be broadcast, applied in bands, or applied to individual stems. Herbicides may be broadcast by air or on the ground. Aerial application is the fastest method, but care must be taken to make sure that the herbicides are applied to the designated site and do not drift to adjacent properties. Herbicides may be applied to individual stems by tree injection, basal spray or soil application.

Herbicides may be used in combination with other methods of site preparation. The use of herbicides is a method of site preparation to consider on steep slopes where erosion may be a problem. **Caution:** Use according to instructions on the label. See NRCS conservation practice standard Forest Stand Improvement, Code 666.

Soil Disturbance by logging. Logging activities can be used to expose mineral soil for either natural or direct seeding.

The preceding site preparation techniques may be used alone or in various combinations for either natural regeneration or artificial regeneration.

TIME OF YEAR

For maximum effect, nearly all site preparation should be done from late spring to early fall.

REFERENCES

1993. Silviculture Best Management Practices, Division of Forestry, Florida Department of Agriculture & Consumer Services.

NRCS Conservation Practice Standards
Code 666 – Forest Stand Improvement
Code 338 – Prescribed Burning
Code 394 - Firebreak

Code of Federal Regulations, Section 404 of The Clean Water Act. See <http://www.epa.gov/region4/water/wetlands/legal/index.html>

University of Florida, Cooperative Extension Service, "Forestry Terminology for Multiple-use Management." See http://edis.ifas.ufl.edu/MENU_FR